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Sent: 6/13/2017 4:01:22 PM
To: Whitson, Amelia [Whitson.Amelia@epa.gov]
Subject: NV0024228 - Rationale & anti-degradation sections

Morning Amelia,

Here are the two sections that you can use to comment (for your convenience & to save time - the permittee's deadline to 'be ready to receive' is approaching fast and I had to reassert that they can't start construction until after the issue of permit. No pressure! ☺☺).

Please note, I had to revise these two sections little more today (and piping design details in the general section based on their revised design & include a new feature/addition to central plant they just adapted in response to the directive (to the permittee) from city of Henderson).

Thanks

Permit Rationale Section:

Effluent Water Quality limitations are set primarily with reference to NAC445A.1236 & NAC 445A.2158 as applicable at the boundary of the approved end of mixing-zone for the discharge from the facility.

The influent is characterized as chiefly consisting of existing surface waters and a smaller portion of shallow groundwater of the Las Vegas Wash located down gradient to BMI complex. NDEP-BISC estimated reach time for the shallow groundwater portion of the influent is few hours to a maximum of few days. Further the treatment process, by design, does not add to the Ammonia and P. As such, under normal operating conditions, the discharge from the facility shall not result in any net ammonia and P loading.

Ammonia: Ammonia is ND in the influent, hence no waste load allocations(WLA) need to be made at this time. However, there is a slight chance this may change depending on the concentrations of ammonium in the influent and the changes in pH, if any, due to the IX chemical reactions. Collecting ammonia as M&R will help the general water quality improvement goals of NDEP for the Wash.

Total Phosphorous(P): Las Vegas Wash has total phosphorous nonpoint source load allocation of 90 lb/day. From the estimates based on the influent data, the facility might contribute about 3lb/day when operating at the full treatment capacity. Additionally per the Memo date June 9th from the Bureau of Water Quality Planning, 'total Phosphorous discharge loads associated with groundwater dewatering activities in the Las Vegas Wash area can be assumed to be part of the base phosphorous load recognized in the 1989 Lake Mead Total Phosphorous TMDL Load Allocation.' M&R of Total P at the end of the pipe at CWTP through the TMDL effective period of March 1 to October 31 is to ensure the P in the effluent is well within the loading allocations.

Permittee's outfall will be within a few hundred feet of existing outfalls (American Pacific Corporation, NERT, Titanium Metals Corporation (two outfalls), and City of Henderson (CoH)) to the Wash. Further the existing NERT site for their BMI Complex ((#NV0023060) has an approved, per NAC 445A.295-302, end of mixing zone point to be monitored, on the basis of tracer-dye study. The Permittee requested to incorporate same location, 5.5 miles upstream of the confluence of the Las Vegas Wash with Lake Mead, as the end of the mixing-zone. The distance between the discharge point to the point of this homogenization point is about 4000 feet. As the discharge volume from this facility is about 4 times compared to the discharges from the NERT site, makes this reference point a conservative approach. Request to be approved as reference end of the mixing zone or downstream Ambient Water Quality Monitoring Point (AWQMP) has been accepted.

TDS, Mn, and B: TDS, Mn, and Boron in the shallow groundwater of the Las Vegas Wash in the general area are the only potential constituents of concern in the effluent per the sampling done using the three monitoring wells (WMW6.55S, WMW6.15S, and WMW5.58SI) and other available data. The Permittee used the 7Q10 approach for identifying the critical low flows for the Wash and either maximum reported concentrations when available or maximum permit limits as critical concentrations for TDS, Mn, and B. The Permittee's request for end of the pipe limits based on estimates arrived at by the mass-balance approach and data as collected from the existing monitoring well sampling as well as last ten years data from the co-dischargers to the reference stretch of the Wash is statistically significant and appropriate; hence are accepted as requested with an expectation for the Permittee to continue to meet the reference water quality standards per NAC 445A.1236 and RMHQ & water quality standards for beneficial uses per NAC 445A.2158 at the AWQMP. The limits for Mn & B at the outfall 003 are set per the approved mass-balance calculations.

TDS: Per the approved mass-balance calculations, a TDS limit of 15,968 mg/l in the effluent is expected to meet RMHQ limit for TDS ≤ 2400 mg/l at the AWQMP per NAC 445A.2158. However, the maximum recorded TDS in the reference data is less than 4,500 mg/l. As such M&R for TDS is more appropriate than setting the three times higher 15,968 mg/l limit from the mass-balance as numerical limit.

TSS & pH: TSS & pH at outfall 003 are limited pursuant to NAC 445A.2158.

Perchlorate: Per the Finding & Order Requiring Engineering Evaluation & Analysis dated April 12, 2016, NDEP-BISC identified and established limits for the potential for accelerated discharge of perchlorate from BMI complex, an adjoining Perchlorate Plume site, to the Wash as a result of proposed dewatering activities associated with the Sunrise Mountain & Historic Lateral Weir Construction. As such, the Permittee's Pump & Treat project goal is to fulfill the obligation to contain and treat the potential accelerated discharge of Perchlorate to the Wash, prior to releasing the effluent back into the Wash, to below 18 micrograms/l. Per this Order, NERT was also under obligation to be ready to receive and treat the influent from dewatering activities by June 1, 2017 but later amended to October 1st, 2017. The perchlorate limit ≤ 18 micrograms reflects the primary project goal.

Total Inorganic Nitrogen: RMHQ of Inorganic Nitrogen per NAC 445A.2158 is 17 mg/l. Due to the very low influent concentration and likely reduction in the concentration per the chemistry to treatment process, the M&R for Inorganic Nitrogen at the end of the CWTP is sufficient.

Priority Pollutants: The project's maximum scheduled project time is about two years, and current data has no priority pollutants that need immediate attention. As such, customary annual M&R is not needed.

The monitoring frequency: The biweekly monitoring frequency is chosen so as to be able to monitor the effluent through each batch of the IX resin and Membrane filter use. The monitoring frequency of monthly when discharging for the AWQMP is deemed sufficient to identify any unexpected exceedances so they can be addressed promptly.

Reasonable potential/anti degradation Review Section: IX process related chemical constituent addition to the waste stream: Based on the Ion exchange reactions of the specific SBA-IX system, the waste stream shall have added chloride ions from the resin (as exchanged for the perchlorate ions, 1 to 1 ratio). Based on the influent perchlorate concentrations being removed (perchlorate in the influent maximum 1.9 mg/l), there is no potential for degradation of receiving water as well as not a significant concentration to affect potential for corrosion of plumbing system.



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